8 February 2019

European Union and its Member States contribution for the 2019 United Nations Informal Consultative Process on Oceans and the Law of the Sea

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equipment. Maximum benefit can be provided to society if knowledge and data are shared. We also consider that it is equally important to improve access to existing knowledge as well as fill marine data gaps.

In view of the above, the European Union and its Member States would like to reiterate their support for the decision taken by the United Nations General Assembly to proclaim the United Nations Decade of Ocean Science for Sustainable Development for the period beginning on 1 January 2021. We also welcome the opportunity offered by the twentieth meeting of the UN Informal Consultative Process to provide input into the preparations for the Decade of Ocean Science.

The EU and its Member States are actively involved in the negotiations on a new international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity in areas beyond national jurisdiction; one of the core principles of this instrument should be the use of the science-based approach in order to ensure that adopted measures are also based on the best- sinvel-2(iul4(t)-2(e-2(nn a)4(r)i)-2(s-10(c“10(a)4(nuot)-2(e)48(onve)4(r)3)-10(f)(t)-12(4(l)

forecasting which will federate existing scientific clouds and research infrastructures and support the development of cloud-based services, thus bringing all the advantages of this new technology to scientists.

In addition, the EU has been working with G7 partners to advance action plans for global action on ocean observation including on integrated ocean observing systems on the Atlantic, the Mediterranean and the Arctic. In 2017, the EU provided EUR 10 million to finance several research infrastructure projects (such as ARICE – Arctic Research Icebreaker Consortium: A strategy for meeting the needs for marine-based research in the Arctic[6] and EUMarineRobots[7]).

Action 14: International ocean research, innovation and science partnerships

Cooperation on marine research and innovation aims to contribute to tackle the challenges linked to the Atlantic Ocean, including ocean observation, food security, polar research and climate variability. The EU pursued the implementation of activities under the All Atlantic Ocean Research Alliance initiated with the signature of the Galway Statement on Atlantic Ocean Cooperation in 2013 with the United States and Canada, which is widely recognised as a model of international cooperation and science diplomacy having gained a lot of momentum in the last years. This triggered the interest of the countries bordering the South Atlantic, paving the way for a more ambitious cooperation addressing the challenges of the Atlantic as a whole, culminating in the signing of the Belém Statement on Atlantic Research and Innovation Cooperation in 2017 with Brazil and South Africa. Furthermore, in 2018, the European Commission signed bilateral Administrative Arrangements on Marine Research and Innovation Cooperation with Argentina and the Republic of Cabo Verde. This will further expand the work on the All Atlantic Ocean Research Alliance.

The EU has allocated over EUR 60 million for the period 2018-2019 through Horizon 2020 to support this cooperation. In parallel, the EU supported the development of the South Atlantic Science Plan under the leadership of Brazil and South Africa.

In addition, an Atlantic Seabed Mapping International Working Group was established under the Galway Statement to help coordinate mapping activities of the three partners, which includes ship-time and data sharing, which identifies the steps required to implement a seabed mapping strategy for mapping in the Atlantic Ocean. The Working Group has undertaken six international transatlantic seabed mapping surveys using the latest technologies. Ground-

The degradation of our seas is particularly acute in marine coastal habitats, where the effects of multiple anthropogenic pressures are causing widespread loss of critical marine coastal habitats, which is projected to increase with climate change. Due to their role in supporting biodiversity and food webs, their loss is in turn leading to a decrease in critical ecosystem services, such as fisheries and natural coastal defences, and a reduction in the capacity of oceans to sequestrate carbon dioxide and help mitigate climate change, current abatement and others. Consequently, further knowledge and best practice are urgently required to stimulate active restoration, as well as developing strategies to return ecosystems to a healthy state within reasonable timeframes.

As a part of the cooperation of the EU and the European Regional Sea Conventions (RSCs), regional quality status reports of the marine waters around Europe have been developed by these RSCs. These reports are an important contribution to the World Ocean Assessment and may contribute to the Oceans' Chapter of Global Sustainable Development Report.

The work on monitoring and assessments coordinated in regional fora may give an important input for follow-up and review of progress towards ocean-related Agenda 2030 and SDG 14.

Strengthening ocean science in developing countries

According to the first World Ocean Assessment, the main capacity needs were crosscutting issues among the regions, in particular:

(i) Data accessibility and data sharing;

(ii) The provisions for mentoring and training opportunities for less experienced scientists and practitioners;

(iii) Data collection and marine habitat mapping to inform management of ecosystems, biodiversity and fisheries;

(iv) Improvement of professional capacities to assess socioeconomic issues; and

(v) Capacity to conduct integrated and ecosystem-services assessments.

Examples of EU projects involving a capacity building and science-policy interface dimensions include:

- As part of its thematic programme on Global Public Goods and Challenges[9] (GPGC), which aims to contribute to the solution of global problems through global development outcomes that will be inclusive and sustainable within planetary boundaries, the EU is financing two important projects that seek to contribute to enhancing the science-policy interface in collaboration with partner developing countries:

[9] https://ec.europa.eu/europeaid/sites/devco/files/gpgc-2014-2017-annex_en.pdf

1) Ecosystem-Based Approach for the Mediterranean facilitating development of monitoring programmes, regional data management and creating science-policy interface in that effort[10]; and

2) Supporting enhanced implementation of the Strategic Plan for Biodiversity 2011-2020 assisting the Convention on Biological Diversity and its contracting parties to achieve the Aichi Biodiversity Targets 6, 10 and 11. Specifically, since 2014, the EU has supported CBD Secretariat programmes of work (including the Nagoya and Cartagena Protocols) with about €5 million for the biennium 2015-2016 and 2017-2018, including in support of capacity building on marine biodiversity, in particular for the EBSAs workshops.

- Copernicus

challenges in the Arctic, encourage further scientific cooperation among a large number of countries and representatives of indigenous peoples.

Deep

Belgium

Belgium welcomes the topic for the 2019 UN Informal Consultative Process on Oceans and the Law of the Sea and wishes to share its initiatives, thus far, in conceptualizing and contributing to the Decade of Ocean Science. In particular, Belgium wishes to highlight the following activities:

- Belgium (Flanders) has contributed a comprehensive response to the survey of the Global Ocean Science Report II. Belgium (Flanders coordinated by Flanders Marine Institute - VLIZ) is leading (together with Canada) in

which serves as the taxonomic backbone to OBIS. WoRMS is an initiative supported by over 140 taxonomic editors worldwide.

- Belgium (Flanders, VLIZ) is the developer and host of other data and information systems, such as the Sea Level Monitoring Facility (global) and the MarineRegions (global) (see datasystems at www.vliz.be)

- Belgium (Flanders, VLIZ) is actively developing Ocean Literacy programs at regional and local level;

- Belgium (Flanders, VLIZ) is chairing the Task Team on the Transfer of Marine Technology (TMT) and Clearing House Mechanism (CHM) for Capacity Development Strategy of the IOC-UNESCO, which will report to the IOC CD group of experts and to be addressed to the IOC general assembly in summer 2019.

- Belgium (Flanders) actively contributes to the programming of new courses and trainings at the IODE Project Office in Ostend, with support of the Flanders Marine Institute, in the context of the Ocean Teacher Global Academy OTGA. This is one of the specific projects and programmes supported through the Flanders UNESCO Science Trust Funds (FUST).

- About FUST: Belgium (Flanders) is now in the process of renewing (by the Government before the elections in May) its five-yearly trust fund agreement with UNESCO (which covers, besides IOC, also our contribution to other UNESCO Science Programmes, and has no 'pre-earmarked' funding for any individual programme), which over the last phase 2014-2018 contributed some 4.67 million USD to IOC projects such as Ocean Teacher Global Academy, SPINCAM, Caribbean Marine Atlas II, …

Finland

National and regional frameworks to implement ecosystem approach to management of human activities are paramount for achieving several SDG 14 targets, e.g. 14.1. on pollution, 14.2. on sustainable management and 14.6 on overfishing. They also constitute a major element of the Science-Policy interface for the sustainable use of Marine resources and safeguarding integrity and resilience of marine ecosystems. Approximately 40% of world's population lives on close vicinity of coastlines and significant human activities in the catchment and coastal waters as drivers subject coastal and shelf marine ecosystems to increasing multiple human pressures.

Pressures like environmental pollution and eutrophication by nutrients from poorly regulated fishing, habitat destruction or alteration by resource extraction, marine litter and discharge of chemical substances or energy are causing unwanted impacts in the marine environment. These locally or regionally induced pressures are superposed by global pressures from human activities threatening marine ecosystems as warming seawater temperatures, ocean acidification and changes in physical properties of the ecosystems due to global warming.

The impacts of human pressures manifest themselves throughout the marine ecosystem as loss of biodiversity and decline of ecologically or commercially important species, harmful algal blooms and adjacent toxin production threatening human health, oxygen deficiency due to high primary productivity, harmful effects to marine mammals from noise or marine litter, siltation, bleaching of coral reefs, effects of environmental pollutants on marine life, among others.

These impacts are alleviated by managing pressures from human activities through ecosystem approach to management, where ecosystem state and amounts of pressures are guiding the acceptable levels of human activities. There are multiple frameworks employing implementation of ecosystem approach to management in place, some of them national some regional (e.g. regional seas conventions) and in Europe extending across several regional seas (MSFD). Also maritime spatial planning, a tool to plan the spatial distribution and placement of various human activities and ecosystem assets is closely related to the successful implementation of the ecosystem approach.

Adaptive management frameworks across the world Ocean have their many forms but share also common elements. Status of the ecosystem components is a major guiding aspect for sustainable use. In addition, level of human pressures and impacts of human activity on

ecosystems are often estimated. Frameworks regularly include socio-economic considerations and may contain explicit indicators for economic or social performance of the Ocean economy and communities involved in it. The complex nature of human drivers, pressures and impacts they cause, further affected by shifting baselines from Global change complicate the application of ecosystem approach, as multiple pressures and their cumulative impacts need to be simultaneously assessed.

We propose a topic on presentation and comparison of various national and regional frameworks on implementation of ecosystem approach to manage human activities in coastal and shelf waters in the world Ocean. In particular, emphasis would be in systems of ecological objectives, associated indicators and their translation into integrated assessment taking also assessment of cumulative impacts into account. Integrated assessment lies in the core of sustainable Ocean economy and, together with Marine spatial planning is crucial for equitable use of marine resources. The goal of discussion would be to understand the current spectrum of frameworks in marine ecosystem assessments and look into elements necessary for safeguarding the sustainable use of the marine resources pursuant to multiple SDG 14 targets.

Ainsi, s'agissant de l'ODD14 « Conserver et exploiter de manière durable les océans, les mers et les ressources marines aux fins de développement durable », et sans être exhaustif à ce stade, la feuille de route a été adoptée par l'État français le 15 novembre 2018. Il est notamment prévu d'accompagner un programme scientifique ambitieux pour l'observation et la connaissance des écosystèmes marins et côtiers :

- développer une meilleure compréhension des liens du triptyque « océan-climat-biodiversité » ;
- soutenir la création d'une plateforme ouverte des connaissances sur le milieu marin ;
- mieux coordonner les comités scientifiques de l'IPBES et du GIEC ;
- développer la recherche sur l'adaptation et la résilience des écosystèmes marins et côtiers, les solutions fondées sur la nature, sur le biomimétisme et le génie écologique ;
- développer la recherche sur la toxicité des polluants sur les écosystèmes marins ;
- cartographier les fonds sous-marins, identifier les sources hydrothermales ;
- développer la recherche sur la désoxygénation du milieu marin.

La recherche irriguera à la fois la capacité d'expertise des pouvoirs publics pour réguler et d'intégrer les différentes activités et la capacité d'innovation des acteurs économiques.

La communauté scientifique française qui s'intéresse à la mer, aux espaces marins et aux activités maritimes occupe une place de premier plan au niveau international. Elle est portée par les organismes de recherche nationaux tels que l'IFREMER, le CNRS, l'IRD et plusieurs universités et grandes écoles (notamment à Aix-Marseille, Bordeaux, Brest, Caen, La Rochelle, Lille, Montpellier, Nantes, Paris, Perpignan). La France dispose d'une flotte océanographique labellisée très grande infrastructure de recherche qui fédère les moyens navals nationaux permettant de mener des recherches en milieu marin côtier et hauturier dans de nombreux domaines scientifiques. L'utilisation de cette infrastructure est ouverte à des échanges et des partenariats dans des domaines d'intérêts communs.

Sur les dix prochaines années, la France poursuivra ses efforts pour développer(pour)T-10(q)-4

La France s'est engagée, à la fois directement et à travers des structures européennes (initiatives de programmation conjointe sur l'eau, les océans et le changement climatique), dans les grandes initiatives pour l'observation de la terre et des océans à l'échelle internationale (GEO, GEOBON, ARGO, IODP, Future Earth) ou européenne (EURO ARGO, EMSO, Copernicus) pour l'ouverture et le partage des données (IODE, GBIF), pour la connaissance et la prévention des risques (notamment les tsunamis), pour le développement des capacités et le transfert de technologies marines.

Elle soutient et promeut des initiatives associant des partenaires publics et des mécènes privés, contribuant à une approche globale de la biodiversité des océans, telles que Tara Océan et les projets qui s'appuient sur l'analyse des données et échantillons collectés sur tous les océans du monde.

De façon plus générale elle promeut l'ouverture de la science, la mobilisation des nouveaux outils numériques et de l'intelligence artificielle en vue de contribuer à la prochaine grande avancée scientifique en matière de modélisation de la biodiversité et des écosystèmes.

À l'échelle méditerranéenne, elle participe notamment à l'initiative BLUEMED financée par la Commission Européenne dans le cadre du programme Horizon 2020.

Elle participe à la montée en puissance d'une thématique océan visible dans le futur

3. Greece and the UN Decade of Ocean Science for sustainable development

Greece is following policies, scientific choices and priorities and draws up a multi-year programming 2021-2025, according to the respective priorities of international organizations, European and global, such as the UNESCO Intergovernmental Oceanographic Commission-IOC, the European Marine Board of the European Science Foundation and the European Commission. Within the existing scientific potential and research infrastructures, Greece will actively engage in future initiatives aiming at the sustainable development and exploitation of the oceans on the basis of the following objectives:

- Science integration through multidisciplinary, collaborative and holistic approaches to marine science, taking into account ecosystem-based and precautionary approaches.

Italy

In the framework of the preparatory works of the UN Decade of Ocean Science for Sustainable Development (2021–2030), and with reference to the Roadmap for its implementation, Italy affirms the intention of pursuing those objectives, in line with relevant initiatives and with its long and well-

2019, is intended to be transmitted to all relevant Italian authorities. Building on the past ten years of experience in ocean science, the aim is to facilitate the setting of the Italian priorities in marine research and the sustainable economic uses of the sea for the next decade.

The meeting was attended by more than sixty ocean science representatives from Italian public institutions involved in marine scientific research locally and globally. The Presidents and Directors of the following entities, among others, contributed to the discussions: the National Research Council of Italy (CNR), hosting the IOC

micro-plastics and the use of air guns. The importance of marine scientific research for policies of adaptation to global warming and sea-level rise was also stressed.

Among the research and development priority areas identified in the Decade Roadmap, including capacity building and accelerated technology transfer, training, education and ocean literacy, and in the context of the global ocean literacy programme led by IOC UNESCO, it is worth mentioning the recent initiative called “Ocean Literacy Italia” (OLI), which aims at promoting at the national level Ilat t20(I)dcel4uding cldene-1(i)acOif are.72 e

Latvia

Latvia participates in several projects financed by the European Union (EU) funds and in EU programmes related to marine scientiffic research, in such a way contributing to the implementation of Latvia` s international obligations and EU legislation concerning marine environmental protection and sustainable use of marine resources, in particular, EU Marine Strategy Framework Directive 2008/56/EC (hereinafter – MSFD).

Most current projects and programmes with involvement of the Latvian Institute of Aquatic Ecology - scientific institute conducting basic and applied research in marine ecology and environment and acting as a competent institution in Latvia regarding marine monitoring and assessment, inter alia, for the MSFD implementation:

- Ministry of Environmental Protection and Regional Development as a competent institution for the implementation of the MSFD in Latvia carries out the project “Improvement of knowledge in the field of marine environment” (2017–2022) financed by the European Maritime and Fisheries fund (EMFF) under the Union priority „Fostering implementation of the integrated maritime policy”. The aim of this research project is to improve the knowledge basis on the state of marine environment, pressures and their cumulative impacts on marine environment, as well as to assess socio-economic aspects and value of marine ecosystem and its services - to define measures needed to reach the objective of achieving a good rine envirt

- management of ecologically and socio-economically sound network of protected marine areas in the Baltic Sea;

Netherlands

More than 600 million people live in coastal areas that are less than 10 meters above sea level and 2.4 billion people live within 100 km off the coast. The global blue economy, which includes employment, ecosystem services provided by the ocean, and cultural services, is estimated at between USD 3-6 trillion/year. Fisheries and aquaculture contribute USD 100 billion per year and about 260 million jobs worldwide (UN, 2017). Oceans do not only provide a means of living for humans; they literally enable life on earth. Our oceans produce over half of the world's oxygen; they store 50 times more carbon dioxide than our atmosphere. The world's oceans are crucial in regulating our climate by transporting heat from the equator to the poles (NOAA, 2019). We cannot overemphasize the importance of healthy oceans for humankind.

Major adverse impacts to the ocean ecosystems stem from climate change, unsustainable extraction of marine resources, destruction of marine and coastal habitats, and marine pollution. These impacts all act cumulatively. Economic activity in the ocean is characterized by a complex variety of risks that need to be addressed. The ocean economy has only recently por

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In relation to the land-sea interface and coastal adaptation

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development. A good example is the data acquired through the contributions of the Ocean Volvo Race teams.

Thematic issues

- Further development of our knowledge and understanding of underwater noise (ships, windfarms, explosives, exploration/exploitation of seabed minerals and its regulation, etc), of its (cumulative) impact and relation to acoustics (communication ecologically, human interventions).

- Stepping up of arctic research, such as with respect to temperature rise, melting of the ice, (including on land), especially where systemic understanding of processes and tipping points is limited, in order to reduce the uncertainties of anticipated sea level rise or its impact on specific mammals and food webs (i.e. Bowhead whale).

- Develop better understanding of the impacts on livelihoods, specifically in developing countries, because of sea level rise and acidification, in order to provide possible adaptation measures or action pathways.

- A better understanding of (the impact of) ALDFG (ghost gear), and avenues to achieve reduction.

- Improvement of our understanding of land based sources of oceanic pollution to improve our ability to address oceanic pollution, including (micro)plastics, nutrients and harmful chemicals,and eutrophication, or, conversely, the dynamics of the sediment and nutrient systems in relation to ocean productivity and coastal health.

- Improve understanding of the value of integrated and holistic approaches to coastal area protection, its instruments (ref. ICZM/MSP/MPA, IWRM, ILM, CA, DRR), and the (scalable) interventions these support.

Portugal

Portuguese Committee for the IOC

Portugal is a strong supporter of, and has actively been involved within the IOC in the preparation of the plan and roadmap for the now proclaimed UN Decade of Ocean Science for Sustainable Development (henceforth referred to in this text as the Decade), since its initial developing phases.

We firmly believe that the Decade is a timely and unique opportunity to mobilize governments, academia, civil society and mankind as a whole, namely the younger generations, to take the urgent actions and required measures to revert the current state of degradation of the ocean's environment and health, while promoting the protection and the sustainable use of the ocean and its resources for the present and future generations, in line with UN initiatives such as the 2nd World Ocean Assessment and the 2030 Agenda for Sustainable Development and its Goals (SDGs), in particular SDG 14.

In order to define priorities, plan, coordinate and execute the necessary actions, and also to assist the IOC's Secretariat in the preparation of the Implementation Phase of the Decade,

Student training at sea is also considered a priority. Based on a most successful decade of experience and participation in the UNESCO/IOC Training Through Research Program (TTR), Portugal strongly believes that the access of young students and researchers to international ocean research facilities and in particular to scientific training at sea, in a multicultural and multidisciplinary environment, is fundamental. Therefore, we will develop efforts at national level and also through the IOC and the UN, to promote the creation of an international network of TTR centers. Such centers which will promote mobility and exchange of students at international level, to participate in multidisciplinary scientific cruises with a strong training component.

Another major opportunity that will be used to promote the awareness of the importance and vulnerability of the oceans, the objectives of the UN Ocean Decade at national and international level, and the urgent actions that need to be taken, is the series of actions planned, and recently launched, by Portugal for the commemorations of the 500 years of the first circumnavigation voyage carried out by the Portuguese navigator and ocean explorer Fernão de Magalhães (Magellan). These will take place between 2019 and 2022, and are being coordinated with similar actions being developed by Spain and other countries, as well as with the commemorating initiatives by the IOC.

United Kingdom

UK ocean science provides public benefit, as part of a global endeavour, by contributing to advancement of scientific knowledge of the ocean. This is both a public good in its own right and can lead to applications, which result directly or indirectly in public benefit. It supports those with responsibility for governing, managing or operating in the ocean environment who seek to do so in a safe and sustainable way. Improving knowledge of the ocean and recognising its influence on society, helps inspire people. Using such information also helps inform and educate, thus allowing us to sustainably grow ocean based economies and secure supplies of food, energy, minerals and natural products. It increases resilience of communities and economic infrastructures to natural disasters; it helps make sense of global-scale environmental change and variability in climate, seasonal weather and biodiversity;